

Once again, it is a great pleasure to report on a year of accomplishments in all areas of the Center. Although the shutdown was prolonged by unforeseen problems in an auxiliary system, the results when we restarted were everything that we had hoped for. The new cooling tower is functioning well, reducing the visible plume during cold weather dramatically. This system is now well prepared for another twenty-plus years of operation. The work on relicensing is also on track — the new analyses are almost complete, and confirm the existing Safety Analysis Report. A new liquid hydrogen cold source of improved design was installed during the same shutdown. It is working well, producing nearly twice as many cold neutrons as its predecessor, exactly in agreement with the detailed MCNP predictions. In every respect, the future for neutron production at the NIST source looks excellent.

As always, we continue to improve existing instruments and work on new ideas. An optical filter was installed in the NG-3 30 m SANS instrument (a key part of the NIST/NSF Center for High Resolution Neutron Scattering), providing further gains of up to a factor of three at long wavelength. A modification to the guide that runs through the choppers of the Disk Chopper time-of-flight Spectrometer has given intensity increases of 2 to 3 over the whole wavelength range. So these two instruments have increased in performance by factors of between 3 and 5 over the past year, a direct result of our continuing investment in instrumentation. A consortium of researchers from five universities has been awarded a grant from the National Institutes of Health to begin development of a new Research Resource called Cold Neutrons for Biology and Technology, which includes construction of a new diffractometer/reflectometer for membrane and related structures. The National Science Foundation has increased its partnership with the NCNR, and now helps to support the high-resolution inelastic scattering instruments in the guide hall. These and other

partnerships, such as the ones with Johns Hopkins University, the University of Maryland, and Brookhaven National Laboratory, are a key part of our plans to move forward, and have been an essential part of our past success.

And again, as always, the science being produced fully justifies the dedication and work of the people who provide the neutrons and instruments. While walking through the facility during operating cycles, I am always amazed at the breadth and depth of research now being done with neutrons, and delighted by the energy and intensity of the young people doing it. I derive great pleasure helping to choose scientific highlights, and then from reading the results of those choices. They form the greatest portion of this report, and I hope that you enjoy them as much as I do.



A handwritten signature in blue ink that reads "Mike Lawrence". The signature is written in a cursive, flowing style.